

LIQUID CRYSTAL ADAPTIVE LENS WITH CLOSED-LOOP ELECTRODES AND
RELATED FABRICATION METHODS AND CONTROL METHODS

ABSTRACT OF THE DISCLOSURE

5 A liquid crystal adaptive lens (LCAL) includes a reference plate, a liquid crystal
layer disposed in electrical communication with the reference plate, and a plurality of
closed-loop electrodes disposed in electrical communication with the liquid crystal layer.
The closed-loop electrodes are adapted to receive a variable control voltage such that the
refractive index of at least a portion of the liquid crystal layer is adjustable such that light
10 passing through the liquid crystal layer is capable of being redirected. By including
closed-loop electrodes, the liquid crystal layer of the LCAL is capable of having a
radially varying refractive index.

15